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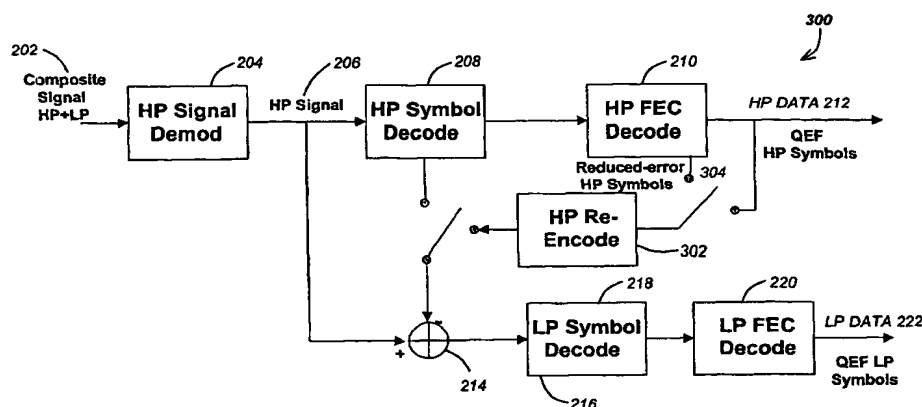
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- (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
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Declaration under Rule 4.17:

— of inventorship (Rule 4.17(iv)) for US only

[Continued on next page]

(54) Title: IMPROVING HIERARCHICAL 8PSK PERFORMANCE



(57) Abstract: A method and receiver systems for demodulating and decoding a hierarchically modulated signal, e.g. an 8PSK signal, are disclosed. An exemplary method includes demodulating and processing (502) the hierarchically modulated signal (202) to produce symbols (212) from the first modulation at the first hierarchical level, applying information (504) from a plurality of the symbols from the first modulation at the first hierarchical level in subtracting (214) from the demodulated hierarchically modulated signal to obtain the second modulation at the second hierarchical level and processing (506) the second modulation at the second hierarchical level to produce second symbols (222) from the demodulated second signal. The hierarchically modulated signal comprises a non-uniform 8PSK signal. Applying the information from the plurality of the symbols from the first modulation can be achieved by applying the symbols after error correction. A decision-directed demodulation of the first modulation can also be used to further improve performance.

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(71) Applicant (for all designated States except US): **THE DIRECTV GROUP, INC.** [US/US]; 2250 E. Imperial Highway, El Segundo, CA 90245 (US).

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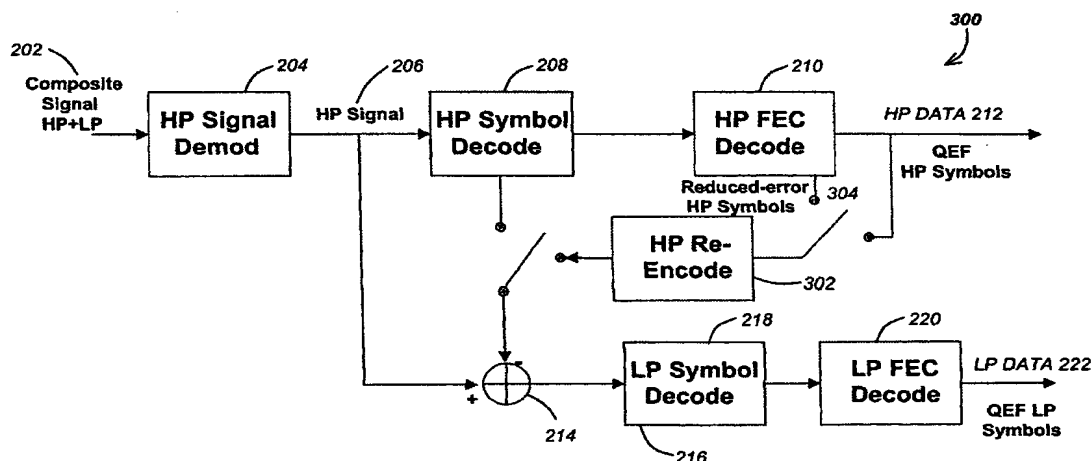
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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/20862

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A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : H04L 23/02, 27/10, 27/22; H03M 13/03

US CL : 375/261, 280, 324, 329; 714/786

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5,903,546 A (IKENA et al) 11 May 1999 (11.05.1999), column 12, line 58 - column 14, line 20	1-16
A	EP 1 054 537 A1 (Kato et al) 22 November 2000 (22.11.2000), paragraphs 0002-0004, 0011-0014 and 0018-0026	1-16
A	EP 1 081 903 A1 (Shiraishi et al) 07 March 2001 (07.03.2001), paragraphs 0014-0026	1-16
A	US 2002/0067744 A1 (FUJII et al) 06 June 2002 (06.06.2002), paragraph 0005	1-16

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See patent family annex.

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document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"Z"

document member of the same patent family

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